

**REMARKS**

Claims 1 – 17 are pending in the current matter. Claims 1 – 17 likewise continue to stand rejected. The office action issued by the Examiner and the citations referred to in the office action have been carefully considered, and are believed to be required to be reconsidered under the current legal standards for obviousness. Alternately, new claims 18 - 20 are presented, responsive to the ongoing litany of arguments from the Examiner, solely for the purpose of advancing the prosecution of the instant matter. Both the originally presented and newly presented claims, in combination with the instant remarks, which claims and remarks (*inter alia*) are believed to place the instant case in a condition for allowance or place the instant subject matters in better condition for appeal, are requested to be reviewed on their merits, introduce no new matter, and do not require further searching. In short, applicant has actually reduced to practice, with results better than those skilled in the art would expect, a high shear method and devices which embody the same, while *Weigl* merely suggests how and why it would be done.

The instant subject matters define allowable improvements over extent art, and should be moved to allowance and issuance, and such relief is hereby earnestly solicited.

**CLAIMS 1 -17 CONTINUE TO STAND REJECTED AS OBVIOUS OVER THE  
WEGIL REFERENCE (United States Letters Patent Number 6,136,272)**

It is respectfully submitted that the Examiner is reading into the *Weigl* reference method claims aspects and attributes that simply are not taught in the case, using applicant's disclosure as a guide. This is not the standard for obviousness, under current law, in fact the combining of apparatus and method limitations has now been expressly overruled - namely:

On November 21, 2005, the Federal Circuit, in *IPXL Holdings v. Amazon.com*, held that reciting "both an apparatus and a method of using that apparatus renders a patent claim indefinite under Section 112, paragraph 2." The facts involved IPXL sued Amazon, arguing that its one-click purchasing system infringed on IPXL's patent. Specifically, the district court found that

claim 25 was indefinite under 35 USC 112 because claim 25 covered both a system and a method for using that system. The pertinent part of claim 25 recited: “the system of claim 2 wherein ... the user uses the input mean.” On appeal, the Federal Circuit set out the rule — that a “claim is considered indefinite if it does not reasonably apprise those skilled in the art of its scope.”

It is respectfully proposed that what the *Weigl* reference discloses is a mixing device with a gap between two flow paths. However, differences in *scale are not the same as differences in size*. While it is true that *In Re Rose*, 105 U.S.P.Q. 237 (C.C.P.A. 1955) stands for the proposition that “the size of an article is not a matter of invention” the case is non-analogous precedent to the instant action because storing lumber and microfluidics are not the same in this context.

The Examiner admits that the movement step comprises invention, and states that it is not positively claimed. While the former is true, that latter is not relevant given the inherent nature of this invention. However, newly presented claims 18 - 20 are believed to address the Examiner’s position. For example:

**Claim 18 (newly presented)** A method for high-shear mixing and reacting of materials comprising:

supplying a first material to a flow path constituted by an interdiffusion passage between two closely spaced stationary surfaces at a respective first flow rate;

supplying a second material to the flow path through the interdiffusion passage at a respective second flow rate, to be interdiffused with the first material therein, with resultant material from the interdiffusion and any consequent reaction moving in the flow path at a respective resultant flow rate;

wherein the first and the second materials, and material resulting from interdiffusion and any consequent reaction of the materials, form respective boundary layers against both surfaces *concomitant with relative movement of the surfaces*;

wherein the radial spacing between the two surfaces is equal to or less than the back-to-back radial thicknesses of the two boundary layers of material against the two surfaces, and if larger than the back-to-back radial thicknesses with a third layer between the two boundary layers has the third layer too thin to support turbulent convection or to cause channeling; and

wherein the flow rates of the materials in the flow path are such that they are subjected to laminar shear of the value required for the interdiffusion.

It is further respectfully submitted that optimizing the Reynolds number is not properly characterizable as “a matter of obvious mechanical design choice”.

The Examiner has rejected all of the claims as obvious over the *Weigl* reference, disclosed to the Office as part of an Information Disclosure Statement from the International Search Report. Since the standards for obviousness require that the U.S. Patent and Trademark Office set forth a *prima facie* case of obviousness, reconsideration of this rejection, for the reasons set forth below, *inter alia*, is hereby respectfully proposed to be in order. Such relief is likewise hereby earnestly solicited.

The Examiner asserts that applicant’s invention is obvious, yet fails to set forth a *prima facie* case of obviousness. As the PTO has the burden to do so, the rejection must be reconsidered. In re Dillon (citation omitted).

In accordance with applicant’s novel method as claimed, the resulting interdiffusion passage with laminar shear is itself unexpected, this is because boundary layers are formed against both surfaces, and it is respectfully submitted, not merely a design choice. It is certainly not obvious to take the device for joining fluid layers of the *Weigl* reference and use it for applicant’s purpose, to achieve applicant’s results.

To beg the question and assert that “optimizing flow interactions” and “modifying radial surfaces so that the inter-diffusion rate is optimized” constitute obvious mechanical design choices circumvents the legal requirement for the PTO to set forth a *prima facie* case of

obviousness, and would “be a disruption of the settled expectations of the inventing community.” Festo v. Shoketsu Kinzoku Kogyo Kabushiki, 535 U.S. 722, 739 (2002).

The Examiner cites In re Dailey, and In re Rose (both of which contained multiple primary and secondary references) to suggest that optimizing by obtaining a linear relationship between viscosity and angular velocity and then eliminating Taylor vortices for better mixing as clearly accomplished by applicant is obvious. Not only is this factually inaccurate, the legal test makes it clear that this is not the standard, and the Examiner seems to imply that achieving the unexpected results would be desired, yet the reference cited did not achieve them, suggest how to get this, or motivate artisans to know how to do so. The PTO must rebut secondary considerations, not make a conclusion that they are not inventive. Stratoflex v. Aeroquip 713 F.2d 1530 (Fed. Cir. 1983). This amendment responds to the Office Action mailed on April 19, 2005. Filed concurrently herewith is a *Request for a Two Month Extension of Time* which extends the shortened statutory period for response to expire on September 19, 2005. Accordingly, Applicant respectfully submits that this response is being timely filed.

As discussed, claims 1 - 20 are now pending and applicant believes these claims are in proper condition for allowance for the reasons set forth below. As set forth in the prior response to the PTO’s Office Action, no a *prima facie* case of obviousness has been set forth under law. Even the MPEP states (although it is not law but interpretation of the same) that this is the case. According to the Manual of Patent Examining Procedure § 2142:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Applicant respectfully submits that the requirements for establishing an obviousness rejection cannot be sustained against claims 1 - 20. First, the prior art reference must teach or suggest all the limitations of the claims. See *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A.

1970). Here, *Weigl* fails to teach a method which leverages of the inherent design elements that have been featured according to the teachings of the present invention.

Still further, Applicant notes that when a reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55 USPQ2d 1487, 1491 (Fed. Cir. 2000) (The disclosure gave no indication that the drawings were drawn to scale. "[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue."). Since *Weigl* is wholly silent within its specification regarding the spacing relationship between any of its device elements and the novel aspects of applicant's process (as admitted by the Examiner), the drawings cannot be relied upon to teach specific dimensions or measurements.

As such, Applicant respectfully submits that *Weigl* fails to disclose the present invention, either alone or in combination with any secondary references in original and as newly presented.

New claims 18 - 20 are also submitted for examination on their merits. Applicant respectfully submits that new claims 18 - 20 are likewise allowable over the cited prior art of record.

### **CONCLUSION**

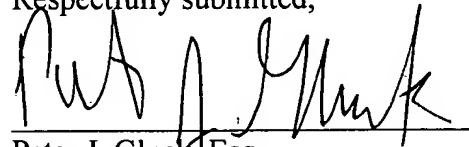
It is respectfully proposed that one skilled in the art would recognize that high-shear mixing without macroscopic convection effects, or Taylor vortices is not obvious, rather doing so according to applicant's original and newly presented claims is part of the instant invention, as opposed to being obvious because it is clearly beneficial. It is therefore respectfully submitted, that one skilled would recognize applicant's implementing the present invention as evidence of its non-obviousness, under *Environmental Designs v. Union Oil Co.*, 713 F.2d 693 (Fed. Cir. 1983), *cert-denied*, 464 U.S. 1043 (1984).

The present invention should be allowed because others have not succeeded at what is claimed, and while they may understand the benefits of doing so, it is inventive. Kegal v. AMF Bowling, 127 F.3d 1420, 1430 (Fed. Cir. 1997). Likewise, optimizing to solve a long-felt need does not only not involve routine skill, it must be rebutted by the PTO, therefore allowance of the instant claims is required under law. Sensonic v. Aerosonic, 81 F.3d 1566 (Fed. Cir. 1996).

In view of the foregoing, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

The Applicant respectfully requests that a timely Notice of Allowance therefore be issued in this case. Should matters remain which the Examiner believes could be resolved in a further telephone interview, the Examiner is requested to telephone the Applicant's undersigned attorney. Accordingly, reconsideration of the application and allowance thereof is courteously solicited.

Respectfully submitted,



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